

REMARKS

Claims 1-20 are pending in the application. Claims 1-15 have been withdrawn from consideration and Claims 16-20 have been rejected under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a). Of the Claims, Claims 16 and 18 are independent claims and are now amended for purposes of clarity. Claims 21-25 are newly added dependent claims. Support for the newly added claims is in the applicants' specification as originally filed. (*See Page 6, lines 13-24.*) No new matter is introduced. The Applicant respectfully traverses the rejections.

Regarding Rejections under 35 U.S.C. 102(b)

Claims 16 and 17 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Crabill et al. (U.S. Patent No. 5,265,024).

Before discussing the cited reference however, a brief review of the applicants' disclosure may be helpful.

The applicants disclose a method for automatically delivering an updated graphical weather image through a satellite to an aircraft based on a flight plan. The updated image may be predictive dependent on the expected position of the aircraft based on the flight plan or based on changes in a source weather image. The graphical weather image may be created by dividing a source image into a grid of cells. A color is selected for each cell corner based on sampling an area defined by the cell corner. An indication of the selected color is stored in an array dependent on the co-ordinates of the cell corner in the source image.

The cited prior art, Crabill is directed to broadcasting weather related data periodically (every 15 minutes) to all aircraft in the reception area of the broadcast. Thus, each aircraft whether in the air or on the ground receives the same broadcasted weather related data.

There is no suggestion of transmitting an updated graphical weather image to an aircraft (en route) based on that aircraft's flight plan as claimed in base Claim 16. As discussed in the applicants' specification, graphical weather related images are very large and consume large communication bandwidth in order to download them to the aircraft. Thus, in contrast to the broadcast system discussed by Crabill, in the applicants' novel approach, the graphical weather image is delivered to an aircraft based on that aircraft's flight plan during operation (en route) of

the aircraft. Furthermore, the updated graphical weather image that is downloaded can be further reduced by only downloading updated weather images when there is relevant weather data based on the flight plan for that aircraft. In contrast in Crabill's system weather related data is periodically downloaded every 15 minutes irrespective of whether the weather related data is relevant. By broadcasting the weather related data, bandwidth in the aircraft is consumed receiving the downloaded data every 15 minutes and the received data may or may not be relevant to the particular aircraft that receives the broadcast. (*See* Crabill, Col. 7, lines 50-68.)

Claim 17 is dependent on Claim 16. Accordingly, claim 17 should be found in allowable condition for the same reasons as claim 16 above, as well as on the basis of additional limitations in the claim. In the applicants' disclosed invention, the weather image is tailored to the particular aircrafts' flight plan and an updated weather image may be transmitted "upon detecting relevant weather". (*See* Claim 17 and Page 6, lines 15-21.) In contrast, in the system discussed by Crabill the transmitter transmits digital weather data blocks including automatic alerts by broadcasting the blocks to all aircraft in the air and on the ground within the satellite coverage area without regard to relevancy for specific receiving aircraft.

In the Applicants' disclosed system, the delivery of an updated graphical weather image is tailored to the particular aircraft position with different images transmitted to each aircraft i.e., not a broadcast service. This allows a more accurate weather image to be downloaded to the aircraft based on expected position along the flight plan allowing the pilot to avoid severe weather in the flight plan by requesting an alternate route.

As such the § 102(b) rejections of Claims 16 and 17 are believed to be overcome.

Regarding Rejections under 35 U.S.C. 103(a)

Claims 18 and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Crabill in view of Simpson (U.S. Patent No. 5,999,882).

Claim 20 is rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Crabill and Simpson further in view of Meyers (U.S. Patent Application No. 2002/0146176A1.)

Cited prior art Simpson is directed to providing weather data along a travel route e.g., flight path or truck route, prior to operation/travel of the vehicle. As shown in Fig. 4 of Simpson,

the weather data for flight plan is obtained prior to filing the flight plan with the FAA for approval. (*See* Fig. 4, step 226.)

Cited prior art Meyers is directed to a method for representing digital images in a manner that enables different images to be compared with each other. The image is divided into square cells. Representation data including the region with the maximum intensity (brightness), the region with maximum intensity and the relative location of the minimum intensity region to the maximum intensity region is generated for each cell. The representation data for each of the cells is combined to create a compact representation of the original data image. The representation data for the original image is used to compare images. Images are represented by a small amount of information and compared with each other in a relatively quick and robust manner.

To establish a prima facie case for obviousness under 35 U.S.C. § 103(a), (1) there must be some suggestion or motivation to combine reference teachings. (2) There must be a reasonable expectation of success. (3) The references when combined must teach or suggest all the claim limitations. For the reasons discussed below, it is respectfully submitted that the Office has not established a prima facie case under 35 U.S.C. § 103(a) for Claims 18-20, and that therefore, Claims 18-20 are allowable.

Simpson does not teach or suggest en route “determining an expected position of the aircraft based on the flight plan” and updating the weather image based on the determined expected position as claimed by the applicants in claim 18. In contrast, Simpson merely discusses downloading weather based on pre-determined positions on a flight path for example, route points for each 50 nautical miles prior to filing a flight plan (and hence not “en route”).

The weather data downloaded to a server from a weather provider is static and provided once prior to filing the travel route. (*See* Simpson, Fig. 1, 12 (server), 20 (weather providers).) The travel route is defined by a departure point, destination point and way points. Only weather data for these points are downloaded to the server. There is no suggestion of transmitting an updated graphical weather image to an aircraft en route. Instead, there are a number of route points (travel points/way points) in the travel route for which weather data is downloaded prior to filing the flight plan. (*See* Col. 6, lines 32-37; Col 7, lines 1-13 and Fig. 2.) Furthermore, the data is not transmitted for display to an aircraft, it is merely downloaded to a server in order to

create a flight plan. If the travel route is not acceptable, the process finds an alternate travel route. (*See* Simpson, Fig. 4, step 224.) In the applicants' disclosed invention, updated graphical weather images are automatically transmitted for a selected travel route during operation (en route) of the aircraft.

Claims 19 and 20 are dependent on claim 18. Accordingly, these claims should be found in allowable condition for the same reasons as claim 18 above, as well as on the basis of additional limitations in these claims.

Carbill does not teach or suggest "the updated image is transmitted based on severity of the weather in the source image" as claimed by the applicants in claim 19. In contrast, Carbill merely discusses that a hazardous weather alert can be included in the downloaded data which is broadcast irrespective of the type of weather detected at a pre-determined interval e.g., every 15 minutes.

Meyers does not teach or suggest at least the applicants' disclosed "selecting a color for each cell corner based on sampling an area defined by the cell corner" as claimed by the applicants in claim 20. Meyers does not even suggest the use of color. In contrast, Meyers merely discusses the use of intensity to compare images. The Meyers method operates on the intensity of the image's pixels, not their color. (*See* Meyers [0023].)

Therefore, separately or in any combination, Carbill, Simpson or Meyer do not teach or suggest the applicants' claimed invention.

Accordingly, the present invention as now claimed is not believed to be anticipated or made obvious from the cited art or any of the prior art. Removal of the rejections under 35 U.S.C. § 103(a) and acceptance of Claims 18-20 is respectfully requested.

New Claims 21-25 are dependent from Claim 16 and are believed to be allowable for at least the same reasons as argued above for base Claim 16. Acceptance is respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that Claims 16-25 are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

By Caroline M. Fleming
Caroline M. Fleming
Registration No. 45,566
Telephone: (978) 341-0036
Facsimile: (978) 341-0136

Concord, MA 01742-9133

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